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National Aeronautics
and Space Administration

MAY 20, 1996
NRA 96-OSS-09

# RESEARCH ANNOUNCEMENT

## SUN-EARTH CONNECTION

## SUPPORTING RESEARCH AND TECHNOLOGY, SUBORBITAL, GUEST INVESTIGATOR, AND EDUCATION PROGRAMS

**INCLUDING APPENDICES A-D**

97-007366/VB

**NOTICE OF INTENT DUE:** JUNE 20, 1996
**PROPOSALS DUE:** AUGUST 20, 1996

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OMB Approval No. 2700-0087

# SUN-EARTH CONNECTION

# SUPPORTING RESEARCH AND TECHNOLOGY, SUBORBITAL, GUEST INVESTIGATOR, AND EDUCATION PROGRAMS

NASA Research Announcement
Soliciting Proposals for Basic Research
submitted on or before
August 20, 1996

NRA 96-OSS-09

Issued: May 20, 1996
Notice of Intent Due: June 20, 1996
Proposals Due: August 20, 1996

Office of Space Science
National Aeronautics and Space Administration
Washington, DC 20546-0001

# SUN-EARTH CONNECTION

## SUPPORTING RESEARCH AND TECHNOLOGY, SUBORBITAL, GUEST INVESTIGATOR, AND EDUCATION PROGRAMS

This NASA Research Announcement (NRA) solicits proposals for basic research investigations that seek to understand natural phenomena in the disciplines relevant to the Sun-Earth Connection theme of NASA's Office of Space Science (OSS). The science disciplines of interest are heliospheric physics, solar physics, magnetospheric physics, and ionospheric-thermospheric-mesospheric (ITM) physics. The purpose of this research opportunity is to enable the relevant science communities to plan, propose for, and fully exploit NASA flight missions in space science through a wide variety of research investigations involving theory and modeling, analysis of archival data, development of concepts for future experiments, development and flight of suborbital experiments, and key ground-based observations that support flight missions. This program supports only those proposals that clearly demonstrate relevance to NASA's interests. Specific opportunities open to proposals through this NRA are for Sun-Earth Connection Supporting Research and Technology (SR&T), Suborbital, Guest Investigator, and Educational Outreach (EO) programs, each of which is treated in detail in Appendix A.

Participation in these programs is open to all categories of organizations including educational institutions, industry, nonprofit institutions, NASA Centers, and other Government agencies. Minority and disadvantaged institutions are particularly encouraged to apply to this NRA. Selection for funding will be based with equal priority on (i) science and technical merit as determined by peer review, (ii) relevance to NASA programs in space science, and (iii) cost. Funding for selected proposals will derive from NASA's budget for Fiscal Year (FY) 1997 beginning October 1, 1996. As of this writing, this budget is still being considered for authorization and appropriation through the Federal budgetary process. Therefore, the Government's obligation to make awards under this NRA is contingent upon both the receipt of proposals that the Government determines are acceptable for award and the availability of appropriated funds.

Table 1 summarizes the Program elements discussed in Appendix A, which provides technical and programmatic information specific to this NRA. Appendix B contains standard guidance for the preparation and the evaluation of proposals. Appendix C provides model formats for summary information that must preface each proposal. Appendix D provides the definitions of terms used in evaluating proposals. Appendices may be accessed by downloading from the Sun-Earth Connection World Wide Web homepage at: http://umbra.nascom.nasa.gov/spd/spd.html or by sending a written request (facsimile, postal mail, or e-mail) to the address below. The following summary information applies to this NRA:

- Program identifier: NRA 96-OSS-09
- Date of Announcement issue: May 20, 1996
- Due date for Notice of Intent to propose: June 20, 1996
- Date for submission of proposal: August 20, 1996; 4:30 pm EDT

- Anticipated announcement of selections: January 1997
- Initiation of new grants: February 1997
- Required proposal copies: 10 copies plus signed original
- Address for requesting an NRA copy and for submission of Notice of Intent:

  NASA Sun-Earth Connection
  NRA 96-OSS-09
  Jorge Scientific Corporation
  400 Virginia Avenue, SW, Suite 700
  Washington, DC 20024
  USA

  Phone 202-554-2775
  Facsimile: 202-554-3042 or 202-554-2970
  E-mail: hlancast@leda.hq.nasa.gov
- Address for proposal submission:

  NASA Sun-Earth Connection
  NRA 96-OSS-09
  Jorge Scientific Corporation
  400 Virginia Avenue, SW, Suite 700
  Washington, DC 20024
  USA

  Phone: 202-554-2775
- Selecting Official:

  Director
  Research Program Management Division
  Office of Space Science
- Contact for additional information: Discipline representatives (See A-9 - A-18)

Your interest and cooperation on this program are appreciated.

George L. Withbroe
Science Program Director
Sun-Earth Connection
Office of Space Science

Enclosures

## TABLE 1. SUMMARY OF SUN-EARTH CONNECTION PROGRAMS FOR FY 1997

| PROGRAM ELEMENT | SUMMARY STATUS | APPENDIX A REFERENCE |
|---|---|---|
| • Cosmic Physics Experimental Program | Not addressed in this NRA | Section 6.1 |
| • Educational Outreach Program | Up to 15 new grants may be selected as supplements to new and/or existing investigations in above programs. | Section 3.3 |
| • Heliospheric Physics Theory and Data Analysis Program | Program fully subscribed, proposals not solicitied | Section 6.1 |
| • Interball Guest Investigator Program | Five one-year awards expected | Section 6.3 |
| • Ionospheric, Thermospheric, Mesospheric Physics SR&T Program | Approximately 50% of the program is open for competition | Section 6.4 |
| • ISTP Guest Investigator Program | Up to $2 M available for competition | Section 6.3 |
| • Magnetospheric Physics SR&T Program | Approximately 25% of the program is open for competition | Section 6.3 |
| • MITM Suborbital Program | Approximately 25% of the program is open for competition | Section 7 |
| • SOHO Guest Investigator Program | Up to $1M available for competition by U.S. investigators | Section 6.2 |
| • Solar Physics SR&T Program | Approximately 30% of the program is open for competition | Section 6.2 |
| • Solar Physics Suborbital Program | Selection of four to six new investigations expected | Section 6.2 |
| • Space Physics Theory Program | Comprehensively reviewed in 1995; fully subscribed through 1998; proposals not solicited | Section 2 |

# NASA RESEARCH ANNOUNCEMENT 96-OSS-NN

# SUN-EARTH CONNECTION

# SUPPORTING RESEARCH AND TECHNOLOGY, SUBORBITAL, GUEST INVESTIGATOR, AND EDUCATION PROGRAMS

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**APPENDIX A**

# SUN-EARTH CONNECTION

# SUPPORTING RESEARCH AND TECHNOLOGY, SUBORBITAL, GUEST INVESTIGATOR, AND EDUCATION PROGRAMS

## 1. INTRODUCTION

The Sun-Earth Connection theme of NASA's Office of Space Science (OSS) supports investigations concerning the origin, evolution, and interactions of space plasmas and electromagnetic fields in the heliosphere and in connection with the galaxy. Understanding the origin and nature of solar activity and its effect on the space environment of the Earth is a particular focus. Previous NASA Research Announcements (NRA's) in this series referred to the science disciplines involved here under the general title of Space Physics. Current discipline foci are:

- Heliospheric Physics: the three-dimensional origin, acceleration, and transport of the solar wind and solar energetic particles and their interaction with the local interstellar medium, including the solar modulation of galactic cosmic rays;

- Solar Physics: the Sun as a typical dwarf star, and as the dominant, time-varying source of energy, plasma, and energetic particles in the solar system especially concerning its influence on the Earth;

- Magnetospheric Physics: the interactions between the solar wind and the physical bodies of the solar system, leading to formation of the magnetospheres of the Earth, other planets, comets, and primordial bodies, and magnetosphere-ionosphere-atmosphere interactions;

and

- Ionospheric, Thermospheric, Mesospheric (ITM) Physics: the physics of the mesosphere, thermosphere, ionosphere, and aurorae of the Earth, including the coupling of these phenomena to the lower atmosphere and magnetosphere.

The emphasis in all of these disciplines is the study of processes that occur naturally in the space environment and/or the study of man made perturbations that elucidate natural plasma processes. Owing to budgetary restrictions, it is extremely unlikely that plasma physics experiments made possible only through access to space can be supported. Details of the purview of these disciplines are given in respective subsections of Section 6.

Owing to the recent OSS reorganization, the solicitation of proposals for research into the specifically galactic astrophysical aspects of Cosmic Ray Physics will be made through a separate NRA.

It is NASA and U.S. Government policy to maximize the opportunities for Small Disadvantaged Businesses, Historically Black Colleges and Universities, and Minority Institutions. Investigators from such institutions are particularly encouraged to propose.

**Regardless of the apparent availability of opportunities for programs discussed in this NRA, prospective proposers are advised that these programs have been extremely competitive in recent years and, therefore, the number of selections has been severely restricted owing to limitations of funds. In the last several years, as few as one out of five of the submitted proposals have been successful in being selected. The current and predicted future NASA budgets indicate that the selection ratio for this current NRA will be no better than in the past.**

## 2. PROGRAM DESCRIPTION

The programs covered by this NRA have now been comprehensively reviewed several times each since 1988, generally resulting in a distribution of one-, two-, and three-year research grants and contracts (hereafter collectively called awards). Since then, yearly NRA's have solicited proposals for those portions of the budget that are anticipated to be uncommitted as a result of the expiration of previous awards and/or as a result of additional budget authority. This NRA is the only one to be issued for funding starting in Fiscal Year (FY) 1997 for basic supporting research and analysis in the programs listed in Table 1 and discussed in detail in Sections 6 and 7 below.

NASA recognizes that the analysis of data from its older flight programs can still provide the basis for significant scientific progress and such data may be used for investigations submitted in response to this NRA. Investigators who wish to do so, however, must verify access to any data that is necessary for the proposed research.

Proposals for several elements of the Sun-Earth Connection research program are solicited in this NRA. These include the Supporting Research and Technology (SR&T) and suborbital programs in the various disciplines, the overarching Space Physics Theory Program (SPTP), and the Educational Outreach (EO) program. Several Guest Investigator (GI) Programs are also introduced in this NRA. Generic program descriptions follow immediately while discipline specific information can be found in Sections 6 and 7.

(1) Supporting Research and Technology Program. The theme disciplines support between 20 and 80 individual research tasks each. These tasks employ a variety of research techniques, *e.g.*, theory, numerical simulation, and modeling, analysis and interpretation of existing space data, development of new instrument concepts, and laboratory measurements of relevant atomic and plasma parameters, all to the extent they have a clearly stated and specific application to contemporary problems of the natural phenomena and to the NASA Sun-Earth Connection program. The individual SR&T programs are described further in Section 6 below.

(2) Suborbital Programs. The objectives of the suborbital programs are: (i) to allow the study of naturally-occurring phenomena in space or near-space that can be obtained with relatively low cost instruments flown from unique locations and/or in conjunction with special events (*e.g.*, a solar eclipse or to gather ancillary data for a related orbiting spacecraft); and (ii) to proof-test new concepts in experimental techniques that may ultimately find application for orbital missions for Sun-Earth Connection program objectives. The suborbital program for Solar Physics is treated in Section 6.2 of this Appendix, and the combined suborbital program for Magnetospheric and ITM physics is treated separately in Section 7.

(3) Space Physics Theory Program (SPTP). This program allows relatively large "critical mass" groups of investigators to attack theoretical and modeling problems concerning the natural phenomena relating to the Sun-Earth Connection program that are beyond the scope of the nominally smaller SR&T tasks discussed above. This program was competed through NRA 95-OSS-11, and the current three year cycle of funding runs through FY 1998. This program is not open for competition through this NRA.

(4) Educational Outreach (EO) Program. This program provides for a modest supplement (up to $5 K per year) to enable educational outreach efforts directed at elementary school through undergraduate college level students and/or teachers, or the general public. Education Outreach efforts may be proposed as supplements to new research proposals for any of the programs noted above. Principal Investigators already holding existing Space Physics research grants having periods of performance that extend into FY 1997 may also propose for an EO supplement. Owing to their small size, EO grants cannot be awarded independent of a "parent" research award. Details are given in Section 3.3 of this Appendix.

(5) Guest Investigator (GI)Programs. Guest Investigator Programs are intended to maximize the return from currently ongoing missions by providing support for research which heavily utilizes mission specific data from currently operating spacecraft. Three GI programs are advertised in this NRA. The SOlar and Heliospheric Observatory (SOHO) Guest Investigator Program is described in Section 6.2 and both the Interball and International Solar Terrestrial Program (ISTP) Guest Investigator Programs are described in Section 6.3.

## 3. RESEARCH OPPORTUNITY

### 3.1 NEW AND RENEWAL PROPOSALS

Anyone wishing to be eligible for funding for a new task to be initiated in FY 1997 for the disciplines described here should respond to this NRA. All proposals received in response to this NRA will be reviewed on an equal basis without regard to whether a preceding task by the same investigator was previously funded by this or any other OSS program. Selections from among the proposals of highest scientific and technical merit will also take into account programmatic factors as determined appropriate for NASA's Sun-Earth Connection theme (see Section 5 below).

Investigators whose proposals were selected for multiyear Space Physics Division awards continuing through FY 1997 do not need to respond to this NRA. Investigators of ongoing awards are strongly encouraged to submit proposals for an Education Outreach supplement; see Section 3.3.

### 3.2 LIMITATIONS ON OBJECTIVES OF PROPOSALS

• This NRA solicits proposals for research investigations that fall within the general scope of the science disciplines as defined in Section 1 but that are distinctly separate from investigations selected for currently approved space flight missions. Therefore, proposals whose intent or purpose is to extend or directly supplement an investigation selected for an approved space flight mission are not appropriate for this NRA.

• Proposals for fabrication of complete flight instruments are not appropriate for this NRA except for the suborbital programs, details of which are provided in Sections 6 and 7. However, the development of instrument concepts and/or critical subassemblies (e.g., detectors, filters, etc.) for long-duration space and/or suborbital flight through to the stage of laboratory ("brass board")

verification may be proposed as an SR&T task provided the proposed activity is in the context of a clearly defined science investigation even though the investigation cannot be carried out without a flight opportunity. While such hardware proposals are strongly encouraged, funding for development of a laboratory instrument concept does not guarantee either a suborbital or orbital flight opportunity.

• Proposals for the analysis of data from past missions are solicited. Such proposals must, however, have specific scientific objectives and not focus just on reprocessing, archiving, and/or routine reduction of flight data.

• Some areas of study within the Sun-Earth Connection theme overlap with research objectives supported by other OSS disciplines. In particular, proposals dealing with the following disciplines are outside the purview of this NRA: the neutral components of planetary toruses, rings, and/or atmospheres of extra-terrestrial planets; comparison of the Sun to other stars; cosmic x-rays and gamma rays; the chemistry and/or dynamics of the lower, neutral terrestrial atmosphere (i.e., below the mesosphere); and cosmic rays. If there are any questions, contact the appropriate discipline scientist.

### 3.3 EDUCATIONAL OUTREACH SUPPLEMENTS

The goal of the EO program is to encourage science community members to become involved with local schools and/or undergraduate colleges, as well as with other public educational institutions. The program supports attempts to provide educational opportunities and materials that promote general scientific literacy, as well as an understanding of the space sciences. The emphasis is on active participation of researchers. It is not in the spirit of this program to simply buy equipment for an educational institution, or to conduct a science contest for student projects. Proposals are expected to provide assurance that the effort is well planned and that it is based on a true "partnership" between the researcher and the general public and/or school system.

The maximum award for a EO supplement is $5 K per year for a period not to exceed that of the parent research proposal. It is desired but not required that the Principal Investigator's institutional overhead be waived for these supplements. In past competitions approximately 75% of submitted EO proposals have been funded.

Specifically, EO proposers should:

- Submit a Notice of Intent

- Target the educational outreach activity at the general public, or students and/or especially teachers at the elementary through high school, or undergraduate collegiate levels

- Include active involvement by the EO Principal Investigator (PI). who must be the PI of a selected NASA research award. The addition of Co-Investigators with educational expertise to in-place research awards is an option which is encouraged.

- Outline a plan for evaluating the success of the proposed project

- Provide a succinct but complete description (not to exceed five pages) of the intended project, prefaced by an abstract. (The only prefatory sheets that need to be submitted are an EO Supplement Cover Sheet (Appendix C, p. C-11) and a summary Budget Sheet following the format of p. C-6).

All EO proposals submitted as supplements to existing awards will be evaluated. The only EO supplements to new research proposals that will be evaluated, however, will be those associated with proposals selected for funding on the merits of the research objectives of the "parent" grant. The evaluation will be conducted by members of the Research Program Management Division (RPMD) and other interested members of the Office of Space Science. The Sun-Earth Connection strongly encourages the submission of EO proposals, but also notes that the submission of an EO proposal will not influence the selection of regular SR&T or Suborbital program proposals. Separately bound proposals for Education Outreach supplements should be submitted in accordance with the instructions in the preceding solicitation letter.

## 4. PROPOSAL PREPARATION AND SUBMISSION

### 4.1. GENERAL PROVISIONS

• Justification for selection of an investigation submitted in response to this NRA lies in its scientific and technological merit, the relevance of the proposed investigation to NASA's flight programs for the Sun-Earth Connection, and its cost to NASA, all of approximately equal weight. See Section 5 for further discussion of the evaluation and selection criteria.

• While there are no specific requirements for its content, successful proposals are typically characterized by posing a scientific investigation having the following attributes:

- a clear description of a specific scientific problem;
- a persuasive description of how the attack on this problem will be carried out;
- a discussion of the relevance of the proposed research to NASA's current and/or future programs;
- a clearly stated budget requesting support for only the items necessary to carry the investigation through to completion.

• The detailed instructions on the preparation of budgets that are presented in Appendix C (p. C-5) must be followed.

• To ensure that responsibility for the proposal is focused on the actual practitioner(s) of the work, "umbrella" proposals directed by a single Principal Investigator (PI) who only serves as an overall director for multiple individual research tasks, even though the individual tasks are related by a common theme, are not appropriate.

• "Co-Principal Investigators" are not recognized; each proposal must have a single PI with overall scientific and financial responsibility for the task.

• Even though NASA can provide awards for only one year at a time, proposers may request periods of performance of up to three years In the case of any multiyear proposal, the scope of the proposed research must justify such funding, and NASA reserves the right to request a revised proposal with restricted objectives appropriate for a reduced period of performance and/or reduced budget. If a proposal is accepted for a multiyear award, continued funding is subject to the availability of funds, demonstration of satisfactory progress as evidenced by a brief annual report, and submission of an updated budget. In the case of a shortage of funds, renewal of multiyear awards usually takes priority over initiation of new awards. NASA reserves the right to negotiate funding for multiyear awards as a condition for continuation.

• Proposals for extensions of previously funded efforts should clearly distinguish between the work which has already been completed and the new work being proposed.

### 4.2 Notice of Intent to Propose

Submission of a Notice of Intent (NOI) to propose is required. This is necessary in order to allow planning for a timely and efficient peer review process. Submission of a NOI does not commit the sender to submit a proposal, nor are Co-Investigator (CoI) commitments binding. The suggested NOI cover sheet format can be found in Appendix C (p. C-2). The NOI must include:

- reference to this NRA by its alpha-numeric identifier;
- the Program Element and Technique/Research area (see page C-2) to which the proposal is to be directed
- the names, institutional addresses, and phone numbers of the Principal Investigator and of anticipated Co-Investigators;
- the title of the expected investigation
- a brief description of the investigation to be proposed

A NOI may be submitted by any one of the following means, please do not send duplicates (i.e., fasimile followed by hard copy). An acknowledgment of receipt will be sent by mail.

• By postal or express mail to:

1996 Sun-Earth Connection NRA
Jorge Scientific Corporation
400 Virginia Avenue, SW, Suite 700
Washington, DC 20024 USA

Phone: 202-554-2775

• By facsimile to: 202-554-3042 or 202-554-2970

• By electronic mail to: hlancast@leda.hq.nasa.gov

### 4.3 Specific Proposal Preparation Information

Proposals submitted in response to this NRA should be prepared following the provisions of Appendix B with the following exceptions:

• Replace paragraph (¶) b. of Section 7., entitled "Transmittal Letter or Prefatory Material," in its entirety as follows:

**"b. Transmittal Letter or Prefatory Material**

"In addition to any transmittal letter that the sponsoring institution may wish to send, the first four pages of a proposal shall constitute summary sheets using the Proposal Prefatory Material in Appendix C of this NRA as follows:

- Cover Sheet (p. C-3)
- Proposal Summary (p. C-4)
- Budget Summary (p. C-6)



//

- Current and Pending Research Support (p. C-7).

"The Proposal Summary prepared in accordance with the model format given on p. C-4 may also serve as the Abstract for the proposal.

"All new proposals from educational and private institutions must be accompanied by properly executed *Certifications* as follows (sample forms are enclosed as pages C-8, C-9, and C-10, respectively, of Appendix C). These certifications constitute part of the proposal prefatory materials and should follow pages C-3 through C-7 as noted above, but need be submitted only with the original signed proposal."

- Replace Section 9 of Appendix B, entitled "LENGTH," in its entirety as follows:

"Proposals should be as brief as possible, containing only substantive material essential for a complete understanding of the proposed project. Proposals are limited to 16 pages for all programs except the Suborbital programs for which the limit is 26 pages. An additional 5 pages is allowed for description of proposed Educational Outreach efforts. Neither the required prefatory pages (Appendix C) nor bibliographies count in these page limits. Each side of a sheet containing text or figures is considered a page. Multipage fold-outs count as the equivalent number of regular pages. Text may be single spaced but limited to 55 lines per page using a font having no more than ~14 characters per inch (10 point font). A one page *curriculum vitae* and personal bibliography relevant may be appended for the PI and Co-I. The full institutional budget must be appended to U.S. proposals.

"Restrictions. Do not send reprints or preprints of articles, nor audio or visual recordings. Proposals must use metric units. In order to facilitate recycling, proposals should be on white paper with a minimum of color or photographic inserts, printed double-sided if possible, and bound in a way that facilitates disassembly (e.g., staples, loose-leaf or spiral plastic bindings)."

- All proposals submitted by U.S. institutions or from non-U.S. institutions that include U.S-based Co-Investigators must comply with the guidance in Appendix B, ¶i. of Section 7, "PROPOSED COSTS."

### 4.4 ADDITIONAL GUIDELINES FOR NON-U.S. PROPOSALS

Scientists from non-U.S. institutions may propose for this program either as Co-I's for a proposal submitted by a U.S. PI, or as PI's with U.S. Co-I's. NASA funds only investigators who are staff members of a U.S. institution, regardless of their citizenship. The following guidelines are to be followed by non-U.S. proposers and their national sponsoring agencies.

1. A Notice of Intent to propose must be submitted as indicated in Section 4.2. An additional copy of this Notice of Intent to propose must also be sent to:

Ms. Shiron Gaines
International Relations Division
Code IR (Attn. NRA 96-OSS-09)
National Aeronautics and Space Administration
Washington, DC 20546-0001 USA.

2. Proposals should be submitted in accordance with the provisions in Appendix B, as amended by Section 4.3. If the proposal involves a Co-I from U.S. institutions, the material in Section 4.4 is applicable to that U.S. Co-I. Proposals must be typewritten and in English. All non-U.S. proposals will undergo the same evaluations and selection processes as U.S. proposals.

3. Non-U.S. PI's or Co-I's planning to submit a proposal should arrange with their appropriate governmental agency for endorsement of the proposed activity. Such endorsement by their national funding organization should indicate that the proposal merits careful consideration by NASA, and that if the proposal is selected, the sponsoring organization has sufficient funds to undertake the proposed activity.

4. All proposals must be received before the established closing date (see Section 7). Those received after the closing date will be treated in accordance with NASA's provisions for late proposals (Appendix B, Section 11), should such action be in NASA's best interest. If review and endorsement are not possible before the closing date, non-U.S. sponsoring agencies may forward a proposal without endorsement with the date when a decision on endorsement can be expected.

5. The required copies (10 plus the signed original ) of the proposal should be sent directly to the address given in the NRA letter covering this Appendix, and one copy of the proposal and the letter of endorsement must be sent to the address in Section 4.4.1.

6. Shortly after the deadline for receipt of proposals, the NASA Program Office coordinating this Announcement will send an acknowledgment of the receipt of proposals to each proposer.

7. Successful and unsuccessful proposers will be contacted directly by the NASA Program Office coordinating this NRA according to the schedule in Section 7. Copies of these letters will also be sent to the sponsoring governmental agency.

8. If a joint proposal is selected, NASA's International Relations Division will make arrangements to provide for the non-U.S. selectee's participation in the program on a no-exchange-of-funds basis, in which NASA and the non-U.S. sponsoring agency will each bear the cost of discharging their respective responsibilities. Depending on the nature and extent of the proposal, these arrangements may entail a letter of notification by NASA, an exchange of letters between NASA and the sponsoring foreign governmental agency, or an agreement between NASA and the sponsoring foreign governmental agency.

## 5. PROPOSAL EVALUATION AND SELECTION

### 5.1 EVALUATION CRITERIA

The criteria to be used for evaluation of proposals are given in Appendix B. Section 13, entitled "EVALUATION FACTORS," with the exceptions that:

- Paragraph (¶) a. of Section 13. is replaced in its entirety by the following:

  "a. Recommendations for selection of a proposal will be based on evaluations of the following factors, which have approximately equal weight: (1) intrinsic scientific

and technical merit, (2) relevance to NASA's space science program objectives, and (3) reasonableness, realism, and total amount of proposed costs."

• NASA advocates a policy of infusing the newest hardware, materials, and technologies into its programs with the goal of minimizing payload mass and complexity. Therefore, ¶c. of Section 13. is replaced by the following:

"c. Evaluation of a proposal's intrinsic merit includes the consideration of the following factors, which are listed in order of decreasing priority:

(1) Overall scientific or technical merit of the proposal

(2) Unique and innovative methods, approaches, or concepts, especially regarding infusion of new technologies that promise faster and/or less expensive development.

Other factors, of lesser importance, none of which is more important than any other include:

(3) Offeror's capabilities, related experience, facilities, techniques, or unique combinations of these which are integral factors for achieving the proposal objectives.

(4) The qualifications, capabilities, and experience of the proposed principal investigator, team leader, or key personnel critical in achieving the proposal objectives.

(5) Overall standing among similar proposals and/or evaluation against the state-of-the art."

### 5.2 Evaluation and Selection Procedures

Proposal evaluations will be accomplished as described in Appendix B, Section 14. A non-Government contractor is expected to aid NASA in organizing and documenting the proposal peer reviews, which will be done by mail-in and/or panel reviews. External reviewers will be asked to consider primarily only the science and technical merit of the proposals, whereas cost and relevance factors are the purview of NASA. All non-Government reviewers are required to submit nondisclosure statements prior to their participation in the evaluation process. All peer reviewers will be asked to provide a final summary evaluation based on the ratings defined in Appendix D. Based on the peer and programmatic evaluations, final selections will be made by the Director of the Research Program Management Division, in consultation with the relevant science discipline staff of the Division as well as the Science Program Director for the Sun-Earth Connection theme.

## 6. Science Discipline SR&T Programs

### 6.1 Heliospheric Physics

The Heliospheric Physics program supports studies of the creation of the solar wind; of the development of the solar wind in three dimensions and on all spatial scales; on solar wind acceleration and transport of energetic particles; and of solar wind interaction with the interstellar medium as it flows around and

through the heliosphere. Heliospheric Physics seeks to understand the space environment of all planetary systems in the solar system, and the interaction of that environment with the Universe outside it.

**A. Heliospheric Physics Theory and Data Analysis Program.** This program supports data analysis and synthesis, theory, simulation, and modeling efforts relevant to understanding the heliosphere. This program underwent comprehensive review in 1994 resulting in three-year awards that essentially subscribe the available budgets through FY 1997. This NRA DOES NOT solicit general heliosphere proposals. It is anticipated that the heliosphere SR&T program will be fully competed next year.

A separate NRA for a new Heliospheric Missions Guest Investigator (GI) program to begin in FY 1997 will be issued shortly. The Heliospheric GI NRA will solicit new investigations which fulfill the objectives of heliospheric science using data from Pioneers 10 and 11 and Voyagers 1 and 2 (postencounter), Ulysses, and SAMPEX.

**B. General Information.** Questions concerning the Heliospheric Physics program should be addressed to:

Dr. Miriam A. Forman
Heliospheric Physics
Research Program Management Division
Code SR
NASA Headquarters
Washington, DC 20546-0001
Telephone: 202-358-0897
Fax: 202-358-3097
E-mail: forman@hq.nasa.gov

The solicitation of proposals for research into the specifically galactic astrophysical aspects of Cosmic Ray Physics will be made through a separate NRA. Questions concerning this NRA and/or general questions regarding the Cosmic Ray program should be addressed to:

Dr. W. Vernon Jones
Research Program Management Division
Code SR
NASA Headquarters
Washington, DC 20546-0001
Telephone: 202-358-1588
Fax: 202-358-3097
E-mail: wvjones@hq.nasa.gov

## 6.2 SOLAR PHYSICS

The Solar Physics program has as its objective the comprehensive study of all solar regimes, defined as the solar interior, the quiet solar atmosphere, solar activity, and the solar corona. Proposals focused on extended analysis of data now in the public domain from previous solar space science missions are encouraged, as are proposals that would aid or abet the planning of possible future solar flight programs, which include:

- the Mechanisms of Solar Variability - Phase Zero (MSV-0) program that was started in FY 1994
- the Transition Region And Coronal Explorer (TRACE) to be launched in September 1997 and operated under an open data policy;
- as a possible next step in the MSV program, a cooperative Japanese Solar-B mission to be launched after 2000

**A. Solar Physics Supporting Research and Technology Program**. The Solar Physics SR&T program supports investigations involving analyses of existing data that are in the public domain and are not currently supported by a specific guest investigator or participating scientist program nor being analyzed by science teams of an active flight mission using Mission Operations and Data Analysis funding. Such acceptable SR&T investigations include the development of theoretical models and numerical simulation techniques pertinent to solar physics, and, in special cases, the development or coordination of solar ground-based observing capabilities that support NASA Solar Physics flight programs. This Solar Physics SR&T program also supports the exploration and demonstration of new instrument concepts pertinent to discipline goals, but it does not support the development of space flight instruments per se.

For purposes of the management of discipline balance, the NASA Solar Physics program is organized into a matrix of five techniques, viz.,

- Development of Instrument Concepts,
- Ground-based Observations,
- Theory,
- Data Analysis, and
- Ancillary Laboratory Research (*e.g.*, derivation of atomic constants or photometric calibrations)

and the four solar research regimes noted above. Investigations in all matrix categories are invited. Proposals that seek to develop laboratory concepts for new instruments for future suborbital or orbital flight opportunities are especially welcome. Although no priorities are imposed on these categories, an ideal program is envisaged as a balance among them, consistent with the quality of submitted proposals and their relevance to the current Solar Physics flight programs. To aid in the identification of peer reviewers it is essential that the Cover Sheet (Appendix C, p. C.2) for Solar Physics proposals include a single discipline descriptor (*e.g.*, Theory/Corona; Ground-based Observations/Solar Interior; *etc.*) as the "TECHNIQUE/RESEARCH AREA" designation.

As part of a mission agency, the Sun-Earth Connection theme seeks to fund only those efforts that directly impact NASA missions or interpretation of their data. Consequently, investigations, especially in ground-based solar physics, even if of considerable merit, will not be given high priority for funding through this NRA if they are judged to be more appropriate for submission to other Federal agencies.

Note that solar physics will review, select, and directly fund only complete investigations proposed by a single PI. Funding of Co-I's from other institutions to an investigation must be accomplished by the PI institution of that investigation.

The Solar Physics SR&T program has had several comprehensive reviews since 1988 resulting in a distribution of one-, two-, and three-year grants. Therefore, only a portion of the program is currently available for competition each year. Total program funds in FY 1996 of $6.2 M supported approximately 82 grants, 25 of which are expiring.

**B. Suborbital Program in Solar Physics**. This program underwent comprehensive review in 1988, 1989, and 1993 for balloon and suborbital rocket investigations, resulting in the selection of a number of multiyear awards.

The suborbital solar rocket program is expected to be somewhat more focused in this coming three-year funding cycle, with emphasis on the support of the SOHO mission, the development of instrument concepts for the MSV-0 program that began in FY 1994 and efforts addressing the approaching solar activity cycle maximum. Proposals will also be considered, however, that address other science areas or technology development activities that relate to the general NASA Solar program.

If a previously funded rocket or balloon investigation group is reselected under this NRA, appropriate funding will continue for a period of up to three years, given adequate evidence of progress and availability of funds. Previously funded groups not reselected may receive phase-out funding for FY 1997, whereas new groups selected may receive only lower, phase-in funding. It is anticipated that about $2.2 M will be available for four to six suborbital investigations in each of the next three years.

**C. SOlar and Heliospheric Observatory (SOHO) Guest Investigator Program.** Proposals are invited to a SOHO Guest Investigator program requiring new SOHO observations, analysis of existing data, theoretical analysis in relation to SOHO observation, or ancillary ground-based observations. SOHO is a mission of international cooperation between ESA and NASA. An objective of the Guest Investigator program is to generate significant results quickly, utilizing the unique and vast capabilities of the SOHO mission.

Two types of Guest Investigator participation in the SOHO mission are foreseen.

- For the coronal experiments GI's will be attached to an experiment team, and within that team will have priority rights for the analysis of certain data sets, or priority rights for a certain type of analysis. This mode of participation will apply to data from the following investigations: Coronal Diagnostic Spectrometer (CDS), Extreme-ultra-violet Imaging Telescope (EIT), White Light and Spectrometric Coronagraph (LASCO), Solar Ultraviolet Emitted Radiation (SUMER), Solar Wind Anistropies (SWAN), and Ultraviolet Coronagraph Spectrometer (UVCS).

- The data for the particle and helioseismology experiments do not lend themselves to being split up into 'events', observing sequences, or time intervals, and, therefore, approved GI's will be included as members of the PI teams and share the rights and obligations of the team members. This mode of participation will apply to data from the following investigations: Charge, Element, and Isotope Analysis (CELIAS), Suprathermal and Energetic Particle analyser (COSTEP), Energetic Particle Analyser (ERNE), Global Oscillations at Low Frequencies (GOLF), Variability of Solar Irradiance (VIRGO), and the Michaelson Doppler Imager (MDI/SOI).

The recommendations for selection of GI proposals will be made by the SOHO Guest Investigator Selection Committee (GISC) whose members are appointed by ESA and NASA. Proposals will be evaluated according to their overall scientific merit, relevance to the SOHO mission, compatibility with declared SOHO PI team objectives, and feasibility. It is necessary but not sufficient for approval for a GI proposal that the proposed work add to the expertise existing within the SOHO experiment team rather than simply duplicating it. Awards will be for one year, but it is anticipated that this SOHO Guest Investigator Program announcement will be repeated annually for at least two years, with up to $1M available per year from NASA. Non-U.S. GI's will have to obtain funding for their research from their national or other international institution.

Prospective Guest Investigators are strongly encouraged to contact the PI team to which they wish to be attached in an early stage of the preparation of the proposal. In particular the following two issues need to be clarified early on:

1) The feasibility of the proposed observations -- are they possible using SOHO instruments, and can they be carried out with a reasonable amount of effort and time?
2) Potential conflicts with investigations by the SOHO PI teams, either through duplication of declared major PI team objectives, or interference with planned observations. Note that in this regard SOHO PI teams may recommend to prospective GI's that they consider different SOHO teams if this seems more appropriate.

Interested parties may inquire by postal or electronic mail, or by phone, to the person in subsection D below for additional written information describing the details of this opportunity, may consult the December 1995 issue of Solar Physics, or may see the SOHO information found at the following World Wide Web site:

http://sohowww.nascom.nasa.gov/

Eligibility: A U.S. PI on the SOHO mission may not receive funding from or propose as a PI to this Guest Investigator Program. SOHO Co-I's may propose to this GI program as PI's but must include in their proposal a description of their mission responsibilities which must not duplicate the research proposed.

Guidelines for preparation and submission of proposals for this program are as the same as those for the standard SR&T proposal with the exception that proposals for this program will be accepted up to 30 days after the due date for proposals to the main SR&T program.

**D. General Information.** Questions concerning the Solar Physics program should be addressed to:

Dr. William J. Wagner
Solar Physics Discipline
Research Program Management Division
Code SR
NASA Headquarters
Washington, DC 20546-0001
Telephone: 202-358-0911
Fax: 202-358-3097
E-mail: wwagner@nhqvax.hq.nasa.gov

## 6.3 MAGNETOSPHERIC PHYSICS

The Magnetospheric Physics program supports studies of the structure and dynamics of magnetospheres and the interactions of solar system space plasmas with planetary magnetospheres and natural space bodies. The discipline focus is on naturally occurring space plasma phenomena, with attention given to both large-scale system structures and processes, and the underlying micro physics. The geospace portion of the solar-terrestrial chain, including the solar wind-magnetosphere interaction, is the principal focus of the program with an emphasis on the role of the magnetosphere in intercepting, storing, converting, and reacting to the impinging energy and momentum from the solar wind. Research on comparative magnetospheres, Moon-plasma

interactions, and comet environments is also appropriate. Primary data are provided from space-based *in situ* and remote sensing measurements of plasmas, plasma waves, energetic particles, electric fields, and magnetic fields; global and large-scale images, e.g., auroras; and appropriate ground-based measurements complementary to and supportive of the space data.

**A. Magnetospheric Physics Supporting Research and Technology Program.** This program supports the analysis, interpretation, and synthesis of data; theoretical research; and the development of models and simulations with the purpose of identifying and understanding the physical processes important to magnetospheric structure and dynamics. The development and testing of new instrument concepts pertinent to discipline goals may also be supported, if the proposed activity is in the context of a clearly defined science investigation, but not the development of specific engineering, proto-flight, or flight instrumentation (see section 3.2 of Appendix A). Total funding in this program has been about $4.0 M per year. Of the approximately 70 grants currently being funded, about one quarter will expire in FY 1996.

**B. Suborbital Program in Magnetospheric, Ionospheric, Thermosphere, and Mesosphere (MITM) Physics.** The MITM program supports research on magnetospheric, ionospheric, thermospheric, and mesospheric physics using a variety of methods for providing low cost access to space. These include standard and long-duration balloons, sounding rockets, Spartan and other Shuttle-based carriers, and sounding rocket-class payloads flown as secondary payloads or on other missions of opportunity. See the separate program description in Section 7 for further details.

**C. International Solar Terrestrial Physics (ISTP) Guest Investigator Program.** A two-year ISTP Guest Investigator program is provided for correlative scientific research - data analysis, theory, and simulations - that heavily utilizes the ISTP data base (Polar, Wind, Geotail, Cluster, and SOHO) and complementary spacecraft, plus the associated ground-based and theory investigations). Such proposed scientific investigations are expected to have PI's or Co-I's from the named missions as collaborators (unfunded by the GI program) and must verify access to the necessary multiple satellite and instrument data bases for the proposed correlative research. An objective of the Guest Investigator program is to generate significant results quickly, utilizing the unique and vast resources of the primary ISTP missions. Thus, the selections for this opportunity must strongly focus upon research that extensively uses the multimission data base to address problems on a global scale. One year or two year awards at a funding level of about $75K to $100K per year are expected to result from this opportunity, for which total funding is expected to be up to $2M per year. For two-year awards, funding approval for the second year will be based upon the tangible scientific achievements of the first year and continued program need. Early scientific results will be used to demonstrate the significant accomplishments and value of the ISTP program both to the scientific community and the public.

Interested parties may inquire by postal or electronic mail, or by phone, to the person in subsection E below for additional written information describing the details of this opportunity, or see the ISTP information found at the following World Wide Web site:

http://www-istp.gsfc.nasa.gov/

Eligibility: A PI on the ISTP missions (Polar, SOHO, Wind, Geotail, and Cluster) may not receive funding from or propose as a PI to this Guest Investigator Program. ISTP mission Co-I's may propose to this GI program as a PI but must include in their proposal a description of their mission responsibilities which must not duplicate the research proposed.

Guidelines for preparation and submission of proposals for this program, including the requirement for submission of a Letter of Intent and submission due dates, are as the same as those for standard SR&T proposals.

**D. Interball Guest Investigator Program.** Collaborative analysis of data from the Russian Space Agency's Interball and U.S. ISTP program satellites is anticipated to provide the basis for important scientific advances. One-year research awards will, therefore, be provided for scientific research - data analysis, theory, and simulations - that emphasizes correlative studies using Interball observations that are important to the GGS/ISTP missions.

Proposed scientific investigations are expected to have Interball PI's or Co-I's as unfunded collaborators and must have verified access to the Interball data required to fulfill the proposed research objectives. The latter verification must be in writing and included in the proposal. Proposals that make high time resolution Interball data available to the GGS/ISTP community on a timely basis will be favored. A strong bias in the selections for this opportunity will be towards research that uses the mission data base extensively to address global scale problems. Approximately 5 one-year awards are expected to result from this opportunity, for which funding totals $250K.

Interested parties may inquire by postal or electronic mail, or by phone, to the person in subsection E below for additional written information describing the details of this opportunity, may see the ISTP information found at the World Wide Web sit referenced in Section 6.3.C, or may query the Interball Home Page at:

http://www.iki.rssi.ru/interball.html

Guidelines for preparation and submission of proposals for this program, including the requirement for submission of a Letter of Intent and submission due dates, are as the same as those for standard SR&T proposals.

**E. General Information.** Questions concerning the Magnetospheric Physics programs should be addressed to:

Dr. Robert L. Carovillano
Magnetospheric Physics Discipline
Research Program Management Division
Code SR
NASA Headquarters
Washington, DC 20546-0001
Telephone: 202-358-0894
Fax: 202-358-3097
E-mail: bcarovillano@gm.ossa.hq.nasa.gov

## 6.4 IONOSPHERIC, THERMOSPHERIC, AND MESOSPHERIC PHYSICS

The Ionospheric, Thermospheric, Mesospheric (ITM) Physics program supports studies of the mesosphere and thermosphere regions of the upper atmosphere, the ionosphere, and the auroral processes of Earth. The goal of the ITM program is to understand the formation, structure,

coupling, and dynamics of these systems. Magnetosphere-ionosphere coupling (which includes auroral phenomena) is treated within the ITM program. The primary emphasis in all cases is the study of processes that occur naturally in space, including the study of manmade perturbations that elucidate natural processes. Earth's ITM regions are an important part of the solar-terrestrial chain. The discipline thus supports studies of solar-terrestrial processes, including studies of coupling processes outward into the magnetosphere and inward to the upper atmosphere.

Proposals based on any *in situ* and/or space-based remote sensing data relevant to these study areas are appropriate. The use of ground-based data is appropriate, however, only when it can be shown that it is clearly and directly relevant to flight program goals. The program also supports laboratory studies that directly address problems in ITM physics.

**A. Ionospheric, Thermospheric, Mesospheric Physics (ITM) Supporting Research and Technology (SR&T) Program**. This program supports theory, simulation, and modeling, indepth data analysis and synthesis, and laboratory studies pertinent to the study of the ionosphere, thermosphere, and mesosphere of the Earth. It also supports the exploration and demonstration of new instrument concepts pertinent to discipline goals, but does not support the development of space flight instruments *per se*. Total funding for the existing ITM program had been about $4.0 M per year. Of the 61 grants currently being funded, approximately one half will expire in FY 1996.

**B. Suborbital Program in Magnetospheric, Ionospheric, Thermospheric Mesospheric (MITM) Physics**. The MITM program supports research on magnetospheric, ionospheric, thermospheric and mesospheric physics using a variety of methods for providing low cost access to space. These include standard and long-duration balloons, sounding rockets, Spartan and other Shuttle-based carriers, and sounding rocket-class payloads flown as secondary payloads or on other missions of opportunity. See the separate program description in Section 7 for further details.

**C. General Information.** Questions concerning the ITM Physics Program should be addressed to:

Dr. Mary Mellott
Ionospheric, Thermospheric, and Mesospheric Physics
Research Program Management Division
Code SR
NASA Headquarters
Washington, DC 20546-0001
Telephone: 202-358-0893.
Fax: 202-358-3097
E-mail: mmellott@hq.nasa.gov

## 7. SUBORBITAL PROGRAM IN MAGNETOSPHERIC, IONOSPHERIC, THERMOSPHERIC, AND MESOSPHERIC (MITM) PHYSICS

### 7.1 GENERAL SCOPE

The MITM program supports research on magnetospheric, ionospheric, thermospheric, and mesospheric physics using a variety of methods for providing low cost access to space. These include standard and long-duration balloons, sounding rockets, Spartan and other Shuttle-based carriers, and sounding rocket-class payloads flown as secondary payloads or on other missions of



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opportunity. The emphasis is on the study of processes that occur naturally in space and/or the study of man made perturbations that elucidate natural plasma processes. Owing to budgetary restrictions, it is extremely unlikely that plasma physics experiments made possible only through access to space can be supported. The base MITM program consists of a minimum number of balloon- and rocket-based investigations. Additional resources are used to provide further balloon and rocket payloads, Shuttle-based investigations, secondary payloads, and/or mission of opportunity investigations. Selection from among these additional investigations will be based on science return, cost-effectiveness and overall programmatic balance. Proposals submitted in response to this NRA may submit budgets for up to three years that are expected to cover a complete suborbital investigation including payload construction, launch phase, and data analysis. An appropriate data analysis effort must be included as part of any flight program proposal.

A confluence of factors has recently made it highly desirable to minimize the operational costs to NASA for the preparation (payload integration and test) and field operations (especially the need for campaigns and/or launches from remote or non-U.S. sites) for its suborbital programs. Investigators are, therefore, strongly encouraged to propose investigations that minimize these operational factors, especially with regard to payload complexity and nontraditional launch sites. All those who intend to propose to the MITM program are strongly urged to discuss prospective investigations with operations personnel at Wallops Flight Facility in order to ensure that probable operational costs are properly anticipated.

### 7.2 Special Programmatic Issues

Support for extended data analysis. Proposals for support for data analysis extending beyond the nominal three-year proposal must be submitted separately to the appropriate SR&T program.

Reflight policy. The advantage of the quick, relatively inexpensive access to space provided by this suborbital program also carries an element of risk. NASA does not guarantee a reflight opportunity for an investigation that fails regardless of the cause of the failure. Although it can be cost effective to refly payloads that have been recovered after some types of flight failure, decisions on reflight must take into account current MITM science priorities and budgets as well as operational support capabilities. Investigators wishing to request reflight of unsuccessful experiments must submit new proposals.

Add-on instruments. MITM proposals are initially selected as comprehensive scientific investigations. The proposal to add an instrument to an ongoing program, whether provided by the selected investigation team or by someone outside of that team, must demonstrate that it is important to the completion of the scientific goals of the original proposal. Requests to expand payload scope beyond the original proposal will require further review of the project.

Launch Voucher Demonstration (LVD) Program. Congress has directed NASA to test the validity of allowing the private sector to provide launch services for a representative sample of the sounding rocket payloads launched from White Sands Missile Range (WSMR). The NASA launch demonstration program will provide a "voucher" to each of a small number (up to about five) of selected suborbital rocket investigators to enable them to solicit and procure launch services directly from the private sector.

NASA offers the opportunity to participate in this LVD program to the proposers for the MITM Suborbital program through this NRA. Proposers should indicate their interest in participation in the LVD program on the Cover Sheet, page C-2 (Appendix C). Volunteering to consider such participation will not be binding on the proposer, nor will it influence the selection process.

Participants in the LVD will not be provided additional financial resources for payload development. Questions about the LVD program should be directed to:

Mr. Paul DeMinco
Manager, Suborbital Programs
Mission and Payload Development Division
Code SD
NASA Headquarters
Washington, DC 20546-0001
Telephone: 202-358-0887.
Fax: 202-358-3987
E-mail: pdeminco@hq.nasa.gov

Sounding Rocket Launch Sites. The two standard U.S. launch sites for sounding rockets are White Sands Missile Range (WSMR), New Mexico, and Wallops Island, Virginia. Although launches from Poker Flat Rocket Range (PFRR) in Alaska require support from mobile launch crews, they do not require separate campaign proposals. However, prospective proposers should be aware that current plans call for the closing of PFRR in alternate years beginning with the winter season 1995-96.

Prospective investigators should also be aware that NASA sounding rocket flights from WSMR require the payment by NASA of significant fees. While the current operations budget contains sufficient funds to support a small number of flights from WSMR every year, it is difficult to accommodate investigations with extended launch windows at WSMR.

In addition to flights from WSMR, Wallops Island, and PFRR, the MITM program has historically been able to support up to one campaign per year consisting of a series of rockets flown from a common but nonstandard launch location. Campaigns are usually planned several years in advance. Those presently scheduled are for PFRR during the winter 1996-97; for Svalbard in the winter of 1997-98; and for Puerto Rico in the fall of 1997.

In proposing for a campaign, the following protocol must be followed:

- A Campaign Scientist should submit a "Campaign Summary" proposal describing the overall effort and listing prospective investigations. The following issues must also be addressed: the rationale for requesting the proposed launch site, the desired launch time, and/or other special launch conditions (moon-down, night time, etc.); any expected foreign involvement; required ground and/or airplane support ; any other information that defines the overall scope of the proposed campaign; and an overall cost budget.

- Each investigator who wishes to participate in a campaign must submit a separate investigation proposal, each of which will be independently reviewed. Clear cross-reference must be made to the Campaign proposal on the Cover Sheet page C-2 (Appendix C).

Proposals from Multiple Institutions. Proposals to the MITM program often involve the development of payloads which require collaboration among several institutions. In such cases the lead PI may propose a direct subcontracting arrangement between the PI institution and the Co-I institutions. To avoid the payment of multiple overhead fees, however, NASA prefers to provide separate awards to each institution involved in such multiinstitutional investigations, with a "Lead Co-I" from each Co-Investigator institution serving as the "Institutional PI" for the award to that institution. The following guidance applies to MITM proposals involving such separately funded contributions from multiple institutions.

- Only the primary proposal for the overall investigation, submitted by the lead PI, will be reviewed. This primary proposal must include the lead PI's work statement (in the page limit noted in Section 5.3) and budget, followed by short task statements and budgets (not counted in the page limit) from all other collaborating Co-I institutions. The proposal cover sheet (Cover Sheet C-3) of the leading proposal must show separately the dollar amounts requested by the leading institution and each Co-I institution, plus the yearly total requests for the total investigation.

- The appended task statement(s) from Co-I collaborating institution(s), not to exceed five pages, must describe that institution's contribution to the investigation, the roles of the Co-I(s) at that institution (if more than one, a single Lead Co-I for that institution must be chosen), and a summary budget for the task following the format of page C-5 in Appendix C.

- Each Co-I institution must additionally submit a full formal, signed proposal incorporating the task statement noted above, all prefatory materials indicated in Appendix C, and a full institutional budget. Such Co-I proposals must be clearly cross-referenced on the Cover sheet to the lead PI proposal and must have the same title as the PI proposal.

### 7.3 Funding Guidelines

MITM program proposals selected under this NRA will be phased into the program as rapidly as resources permit. As a rule, new investigations are awarded definition-level funding in their first year, full funding for development in their second year, leading to flight early in their third year, which concludes with data analysis. Total funding in this program has been about $4 M per year; annual funding levels have averaged $200 K per investigation and $130 K per individual investigator. Of the 19 investigations currently being funded, five will end in FY 1996.

### 7.4 General Information

Questions concerning this program should be addressed to:

Dr. Mary Mellott
Suborbital MITM Physics Program
Research Program Management Division
Code SR
NASA Headquarters
Washington, DC 20546-0001
Telephone: 202-358-0893.
Fax: 202-358-3097
E-mail: mmellott@hq.nasa.gov

# INSTRUCTIONS FOR RESPONDING TO NASA RESEARCH ANNOUNCEMENTS

June 1995

## 1. FOREWORD

a. These instructions apply to "NASA Research Announcements." The "NASA Research Announcement (NRA)" permits competitive selection of research projects in accordance with statute while preserving the traditional concepts and understandings associated with NASA sponsorship of research.

b. These instructions are Appendix I to 1870.203 of the NASA Federal Acquisition Regulation Supplement.

## 2. POLICY

a. Proposals received in response to an NRA will be used only for evaluation purposes. NASA does not allow a proposal, the contents of which are not available without restriction from another source, or any unique ideas submitted in response to an NRA to be used as the basis of a solicitation or in negotiation with other organizations, nor is a pre-award synopsis published for individual proposals.

b. A solicited proposal that results in a NASA award becomes part of the record of that transaction and may be available to the public on specific request; however, information or material that NASA and the awardee mutually agree to be of a privileged nature will be held in confidence to the extent permitted by law, including the Freedom of Information Act.

## 3. PURPOSE

These instructions supplement documents identified as "NASA Research Announcements." The NRA's contain programmatic information and certain requirements which apply only to proposals prepared in response to that particular announcement. These instructions contain the general proposal preparation information which applies to responses to all NRA's.

## 4. RELATIONSHIP TO AWARD

a. A contract, grant, cooperative agreement, or other agreement may be used to accomplish an effort funded in response to an NRA. NASA will determine the appropriate instrument.

b. Grants are generally used to fund basic research in educational and nonprofit institutions, while research in other private sector organizations is accomplished under contract. Contracts resulting from NRA's are subject to the Federal Acquisition Regulation and the NASA FAR Supplement (NHB 5100.4). Any resultant grants or cooperative agreements will be awarded and administered in accordance with the NASA Grant and Cooperative Agreement Handbook (NHB 5800.1).

## 5. CONFORMANCE TO GUIDANCE

a. NASA does not have mandatory forms or formats for preparation of responses to NRA's; however, it is requested that proposals conform to the guidelines in these instructions. NASA may accept proposals without discussion; hence, proposals should initially be as complete as possible and submitted on the proposers' most favorable terms.

b. To be considered responsive, a submission must, at a minimum, present a specific project within the areas delineated by the NRA; contain sufficient technical and cost information to permit a meaningful evaluation; be signed by an official authorized to legally bind the submitting organization; not merely offer to perform standard services or to just provide computer facilities or services; and not significantly duplicate a more specific current or pending NASA solicitation.

## 6. NRA-SPECIFIC ITEMS

Several proposal submission items appear in the NRA itself. These include: the unique NRA identifier; when to submit proposals; where to send proposals; number of copies required; and sources for more information. Items included in these instructions may be supplemented by the NRA.

## 7. PROPOSAL CONTENTS

a. The following information is needed in all proposals in order to permit consideration in an objective manner. NRA's will generally specify topics for which additional information or greater detail is desirable. Each proposal copy shall contain all submitted material, including a copy of the transmittal letter if it contains substantive information.

b. Transmittal Letter or Prefatory Material.

(1) The legal name and address of the organization and specific division or campus identification if part of a larger organization;

(2) A brief, scientifically valid project title intelligible to a scientifically literate reader and suitable for use in the public press;

(3) Type of organization: e.g., profit, nonprofit, educational, small business, minority, women-owned, etc.;

(4) Name and telephone number of the principal investigator and business personnel who may be contacted during evaluation or negotiation;

(5) Identification of other organizations that are currently evaluating a proposal for the same efforts;

(6) Identification of the NRA, by number and title, to which the proposal is responding;

(7) Dollar amount requested , desired starting date, and duration of project;

(8) Date of submission; and

(9) Signature of a responsible official or authorized representative of the organization, or any other person authorized to legally bind the organization (unless the signature appears on the proposal itself).

c. Restriction on Use and Disclosure of Proposal Information. Information contained in proposals is used for evaluation purposes only. Offerors or quoters should, in order to maximize protection of trade secrets or other information that is confidential or privileged, place the following notice on the title page of the proposal and specify the information subject to the notice by inserting appropriate identification, such as page numbers, in the notice. In any event, information contained in proposals will be protected to the extent

permitted by law, but NASA assumes no liability for use and disclosure of information not made subject to the notice.

NOTICE

> Restriction on Use and Disclosure of Proposal Information. The information (data) contained in [insert page numbers or other identification] of this proposal constitutes a trade secret and/or information that is commercial or financial and confidential or privileged. It is furnished to the Government in confidence with the understanding that it will not, without permission of the offeror, be used or disclosed other than for evaluation purposes; provided, however, that in the event a contract (or other agreement) is awarded on the basis of this proposal the Government shall have the right to use and disclose this information (data) to the extent provided in the contract (or other agreement). This restriction does not limit the Government's right to use or disclose this information (data) if obtained from another source without restriction.

d. Abstract. Include a concise (200-300 word if not otherwise specified in the NRA) abstract describing the objective and the method of approach.

e. Project Description.

(1) The main body of the proposal shall be a detailed statement of the work to be undertaken and should include objectives and expected significance; relation to the present state of knowledge; and relation to previous work done on the project and to related work in progress elsewhere. The statement should outline the plan of work, including the broad design of experiments to be undertaken and a description of experimental methods and procedures. The project description should address the evaluation factors in these instructions and any specific factors in the NRA. Any substantial collaboration with individuals not referred to in the budget or use of consultants should be described. Subcontracting significant portions of a research project is discouraged.

(2) When it is expected that the effort will require more than one year for completion, the proposal should cover the complete project to the extent that it can be reasonably anticipated. Principal emphasis should, of course, be on the first year of work, and the description should distinguish clearly between the first year's work and work planned for subsequent years.

f. Management Approach. For large or complex efforts involving interactions among numerous individuals or other organizations, plans for distribution of responsibilities and arrangements for ensuring a coordinated effort should be described. Intensive working relations with NASA field centers that are not logical inclusions elsewhere in the proposal should be described.

g. Personnel. The principal investigator is responsible for supervision of the work and participates in the conduct of the research regardless of whether or not compensated under the award. A short biographical sketch of the principal investigator, a list of principal publications and any exceptional qualifications should be included. Omit social security number and other personal items which do not merit consideration in evaluation of the proposal. Give similar biographical information on other senior professional personnel who will be directly associated with the project. Give the names and titles of any other scientists and technical personnel associated substantially with the project in an advisory capacity. Universities should list the approximate number of students or other assistants,

together with information as to their level of academic attainment. Any special industry-university cooperative arrangements should be described.

h. Facilities and Equipment.

(1) Describe available facilities and major items of equipment especially adapted or suited to the proposed project, and any additional major equipment that will be required. Identify any Government-owned facilities, industrial plant equipment, or special tooling that are proposed for use.

(2) Before requesting a major item of capital equipment, the proposer should determine if sharing or loan of equipment already within the organization is a feasible alternative. Where such arrangements cannot be made, the proposal should so state. The need for items that typically can be used for research and non-research purposes should be explained.

i. Proposed Costs.

(1) Proposals should contain cost and technical parts in one volume: do not use separate "confidential" salary pages. As applicable, include separate cost estimates for salaries and wages; fringe benefits; equipment; expendable materials and supplies; services; domestic and foreign travel; ADP expenses; publication or page charges; consultants; subcontracts; other miscellaneous identifiable direct costs; and indirect costs. List salaries and wages in appropriate organizational categories (e.g., principal investigator, other scientific and engineering professionals, graduate students, research assistants, and technicians and other non-professional personnel). Estimate all manpower data in terms of man-months or fractions of full-time.

(2) Explanatory notes should accompany the cost proposal to provide identification and estimated cost of major capital equipment items to be acquired; purpose and estimated number and lengths of trips planned; basis for indirect cost computation (including date of most recent negotiation and cognizant agency); and clarification of other items in the cost proposal that are not self- evident. List estimated expenses as yearly requirements by major work phases. (Standard Form 1411 may be used).

(3) Allowable costs are governed by FAR Part 31 and the NASA FAR Supplement Part 18-31 (and OMB Circulars A-21 for educational institutions and A-122 for nonprofit organizations).

j. Security. Proposals should not contain security classified material. If the research requires access to or may generate security classified information, the submitter will be required to comply with Government security regulations.

k. Current Support. For other current projects being conducted by the principal investigator, provide title of project, sponsoring agency, and ending date.

l. Special Matters.

(1) Include any required statements of environmental impact of the research, human subject or animal care provisions, conflict of interest, or on such other topics as may be required by the nature of the effort and current statutes, executive orders, or other current Government-wide guidelines.

(2) Proposers should include a brief description of the organization, its facilities, and previous work experience in the field of the proposal. Identify the cognizant Government audit agency, inspection agency, and administrative contracting officer, when applicable.

## 8. RENEWAL PROPOSALS

a. Renewal proposals for existing awards will be considered in the same manner as proposals for new endeavors. A renewal proposal should not repeat all of the information that was in the original proposal. The renewal proposal should refer to its predecessor, update the parts that are no longer current, and indicate what elements of the research are expected to be covered during the period for which support is desired. A description of any significant findings since the most recent progress report should be included. The renewal proposal should treat, in reasonable detail, the plans for the next period, contain a cost estimate, and otherwise adhere to these instructions.

b. NASA may renew an effort either through amendment of an existing contract or by a new award.

## 9. LENGTH

Unless otherwise specified in the NRA, effort should be made to keep proposals as brief as possible, concentrating on substantive material. Few proposals need exceed 15-20 pages. Necessary detailed information, such as reprints, should be included as attachments. A complete set of attachments is necessary for each copy of the proposal. As proposals are not returned, avoid use of "one-of-a-kind" attachments: their availability may be mentioned in the proposal.

## 10. JOINT PROPOSALS

a. Where multiple organizations are involved, the proposal may be submitted by only one of them. It should clearly describe the role to be played by the other organizations and indicate the legal and managerial arrangements contemplated. In other instances, simultaneous submission of related proposals from each organization might be appropriate, in which case parallel awards would be made.

b. Where a project of a cooperative nature with NASA is contemplated, describe the contributions expected from any participating NASA investigator and agency facilities or equipment which may be required. The proposal must be confined only to that which the proposing organization can commit itself. "Joint" proposals which specify the internal arrangements NASA will actually make are not acceptable as a means of establishing an agency commitment.

## 11. LATE PROPOSALS

A proposal or modification received after the date or dates specified in an NRA may be considered if the selecting official deems it to offer NASA a significant technical advantage or cost reduction.

## 12. WITHDRAWAL

Proposals may be withdrawn by the proposer at any time. Offerors are requested to notify NASA if the proposal is funded by another organization or of other changed circumstances which dictate termination of evaluation.

## 13. EVALUATION FACTORS

a. Unless otherwise specified in the NRA, the principal elements (of approximately equal weight) considered in evaluating a proposal are its relevance to NASA's objectives, intrinsic merit, and cost.

b. Evaluation of a proposal's relevance to NASA's objectives includes the consideration of the potential contribution of the effort to NASA's mission.

c. Evaluation of its intrinsic merit includes the consideration of the following factors, none of which is more important than any other:

(1) Overall scientific or technical merit of the proposal or unique and innovative methods, approaches, or concepts demonstrated by the proposal.

(2) Offeror's capabilities, related experience, facilities, techniques, or unique combinations of these which are integral factors for achieving the proposal objectives.

(3) The qualifications, capabilities, and experience of the proposed principal investigator, team leader, or key personnel critical in achieving the proposal objectives.

(4) Overall standing among similar proposals and/or evaluation against the state-of-the-art.

d. Evaluation of the cost of a proposed effort includes the realism and reasonableness of the proposed cost and the relationship of the proposed cost and available funds.

## 14. EVALUATION TECHNIQUES

Selection decisions will be made following peer and/or scientific review of the proposals. Several evaluation techniques are regularly used within NASA. In all cases proposals are subject to scientific review by discipline specialists in the area of the proposal. Some proposals are reviewed entirely in-house, others are evaluated by a combination of in-house and selected external reviewers, while yet others are subject to the full external peer review technique (with due regard for conflict-of- interest and protection of proposal information), such as by mail or through assembled panels. The final decisions are made by a NASA selecting official. A proposal which is scientifically and programmatically meritorious, but not selected for award during its initial review, may be included in subsequent reviews unless the proposer requests otherwise.

## 15. SELECTION FOR AWARD

a. When a proposal is not selected for award, and the proposer has indicated that the proposal is not to be held over for subsequent reviews, the proposer will be notified. NASA will explain generally why the proposal was not selected. Proposers desiring additional information may contact the selecting official who will arrange a debriefing.

b. When a proposal is selected for award, negotiation and award will be handled by the procurement office in the funding installation. The proposal is used as the basis for negotiation. The contracting officer may request certain business data and may forward a model contract and other information which will be of use during the contract negotiation.

## 16. CANCELLATION OF NRA

NASA reserves the right to make no awards under this NRA and to cancel this NRA. NASA assumes no liability for canceling the NRA or for anyone's failure to receive actual notice of cancellation. Cancellation may be followed by issuance and synopsis of a revised NRA, since amendment of an NRA is normally not permitted.

**APPENDIX C**

# PROPOSAL PREFATORY MATERIALS

## NRA 96-OSS-09
## SUN-EARTH CONNECTION
## SUPPORTING RESEARCH AND TECHNOLOGY, SUBORBITAL, GUEST INVESTIGATOR, AND EDUCATION PROGRAMS


- NOTICE OF INTENT TO PROPOSE C-2
- PROPOSAL COVER SHEET C-3
- PROPOSAL SUMMARY C-4
- INSTRUCTIONS FOR BUDGET PREPARATION C-5
- BUDGET SUMMARY C-6
- CURRENT AND PENDING RESEARCH SUPPORT C-7
- CERTIFICATION REGARDING DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS C-8
- CERTIFICATION REGARDING DRUG-FREE WORKPLACE REQUIREMENTS C-9
- CERTIFICATION REGARDING LOBBYING C-10
- COVER SHEET FOR EDUCATIONAL OUTREACH SUPPLEMENT PROPOSALS C-11

**NOTICE OF INTENT TO PROPOSE**

**NRA 96-OSS-09**
**SUN-EARTH CONNECTION**
**SUPPORTING RESEARCH AND TECHNOLOGY,**
**SUBORBITAL, GUEST INVESTIGATOR,**
**AND EDUCATION PROGRAMS**

PROGRAM ELEMENT: (check one)

- ☐ INTERBALL Guest Investigator Program
- ☐ Ionospheric, Thermospheric, and Mesospheric Physics
- ☐ ISTP Guest Investigator Program
- ☐ Heliospheric Physics
- ☐ Magnetospheric Physics
- ☐ MITM Suborbital:
  - Part of Campaign proposal? YES/NO
  (If YES, identify Campaign Scientist and name of Campaign)
- ☐ SOHO Guest Investigator Program
- ☐ Solar Physics

FOR ALL PROGRAM ELEMENTS:

- Intent to submit an Education Outreach (EO) Supplement? YES / NO

TECHNIQUE / RESEARCH AREA:
(e.g., Data Analysis/Solar Corona; Simulation/Magnetic Reconnection; Experiment Concept/Ionosphere; Theory/Auroral Substorms; *etc.*)

TITLE OF INVESTIGATION:

PRINCIPAL INVESTIGATOR:
Name/Title
Mail address
Telephone
E-mail address

CO-INVESTIGATOR(S): Name(s) and Institutional Addresses(s)

## PROPOSAL COVER SHEET

**NRA 96-OSS-09**
**SUN-EARTH CONNECTION**
**SUPPORTING RESEARCH AND TECHNOLOGY,**
**SUBORBITAL, GUEST INVESTIGATOR,**
**AND EDUCATION PROGRAMS**

PROGRAM ELEMENT: (check one)

- ☐ Interball Guest Investigator Program
- ☐ Ionospheric, Thermospheric, and Mesospheric Physics
- ☐ ISTP Guest Investigator Program
- ☐ Heliospheric Physics
- ☐ Magnetospheric Physics
- ☐ MITM Suborbital:
  - Willing to consider participation in LVD Program? YES/NO
  - Part of Campaign proposal? YES/NO
  (If YES, identify Campaign Scientist and name of Campaign)
- ☐ SOHO Guest Investigator Program
- ☐ Solar Physics

FOR ALL PROGRAM ELEMENTS:

- Proposal indudes an Education Outreach (EO) Supplement? YES/NO

TECHNIQUE / RESEARCH AREA:
(e.g., Data Analysis/Solar Corona; Simulation/Magnetic Reconnection; *etc.*)

TITLE OF INVESTIGATION:

PRINCIPAL INVESTIGATOR: Name/Title
Institutional address
Telephone and E-mail address
Signature

CO-INVESTIGATOR(S): Name(s)
Institutional Address(es)

INSTITUTIONAL AUTHORIZATION:
Name/Title
Institutional address including telephone
Authorizing Signature/Date

| BUDGET SUMMARY: | 1st Year | 2nd Year | 3rd Year | Total |
|---|---|---|---|---|
| • RESEARCH TASK ($K): | _____ | _____ | _____ | _____ |

## PROPOSAL SUMMARY

PROGRAM ELEMENT:

TITLE OF INVESTIGATION:

PRINCIPAL INVESTIGATOR / INSTITUTION:

SUMMARY OF PROPOSED INVESTIGATION:

Special Instructions:

- Proposal Summary may be single spaced and should not exceed the remainder of this page
- Proposal Summary may serve as the abstract of the proposal, which need not be repeated as part of the proposal.
- Proposal summary should address the following points:

  (a) Overall objectives and strategy of the proposed work.
  (b) If supported in immediately previous funding cycle by NASA, a summary of recent progress and accomplishments, or state "New Task," as appropriate.
  (c) A brief description of what will be done and plan of activities.
  (d) Statement of relevance of proposed research to NASA's Space Science programs.

# INSTRUCTIONS FOR BUDGET PREPARATION

## General Instructions for PROPOSAL BUDGET SUMMARY

1. Provide a separate Budget Summary sheet for each year of the proposal research.

2. Grantee estimated costs should be entered in Column A. Columns B and C are for NASA use only. Column C represents the approved grant budget.

3. Provide in attachments to the proposal the detailed computations of estimates in each category, along with any narrative explanation required to fully explain proposed costs.

## Material to be included in budget attachment:

1. Direct Labor (salaries, wages and fringe benefits). Enclosures should list number and titles of personnel, amount of time devoted to the grant, and rates of pay.

2. Other Direct Costs.

   a. Subcontracts - Enclosures should describe the work to be subcontracted, estimated amount, recipient (if known), and the reason for subcontracting this effort.
   b. Consultants - Identify consultants to be used, why they are necessary, time to be spent on the project, and rates of pay.
   c. Equipment - List separately and explain the need for items of equipment exceeding $1,000. Describe the basis for the estimated cost.
   d. Supplies - Provide general categories of needed supplies, the method of acquisition, estimated cost, and the basis for the estimate.
   e. Travel - List the proposed trips individually, describe their purpose in relation to the grant, provide dates and destinations where known, and explain how the cost for each was derived.
   f. Other - Enter the total of any other direct costs not covered by 2.a through 2.e. Enclose an itemized list explaining the need for each item and the basis for the estimate.

3. Indirect Costs. Identify indirect cost rate(s) and base(s) as approved by the cognizant Federal agency, including the effective period of the rate. If unapproved rates are used, explain why and include a computational basis for the indirect expense pool and corresponding allocation base for each rate.

4. Other Applicable Costs. Enter the total of any other applicable costs not covered by instructions 1 through 3. Enclose an itemized list explaining the need for each item and the basis for the estimate.

5. Subtotal -- Estimated Costs. Enter the sum of items 1, 2.a through 2.f, 3, and 4.

6. Less Proposed Cost Sharing (if any). Enter the amount proposed, if any. If cost sharing is based on specific cost items, identify each item and amount in enclosures.

7. Carryover Funds (if any). Enter the dollar amount of any funds that are expected to be available for carryover from the prior budget period.

8. Total Estimated Costs. Enter the total after subtracting items 6 and 7 from item 5.

## PROPOSAL BUDGET SUMMARY

FROM: (starting date) to (ending date)

TITLE OF INVESTIGATION:

PRINCIPAL INVESTIGATOR / INSTITUTION:

| | | NASA USE ONLY | |
|---|---|---|---|
| | A | B | C |
| 1. Direct Labor (salaries, wages, and fringe benefits) | | | |
| 2. Other Direct Costs: | | | |
| a. Subcontracts | | | |
| b. Consultants | | | |
| c. Equipment | | | |
| d. Supplies | | | |
| e. Travel | | | |
| f. Other | | | |
| 3. Indirect Costs | | | |
| 4. Other Applicable Costs | | | |
| 5. Subtotal--Estimated Costs | | | |
| 6. Less Proposed Cost Sharing | | | |
| 7. Carryover Funds (if any) | | | |
| a. Anticipated amount | | | |
| b. Amount used to reduce budget | | | |
| 8. Total Estimated Costs | | | XXXXXXXX |
| APPROVED BUDGET | XXXXXXX | XXXXXXX | |

## CURRENT AND PENDING RESEARCH SUPPORT

1. For the Principal Investigator, provide separately for categories A and B the following information:

- Project title and sentence abstract
- Source of support
- Award amount and period covered by award
- Work-year commitment of the proposed Investigator.

A. Currently supported research project(s) that will be active during FY 1997 (October 1, 1996, through September 30, 1997).

B. Research project(s) for which support is pending selection (including this proposal).

2. List the name of any other funding sponsor to which this proposal has been or will be contemporaneously submitted, including relevant dates.

## CERTIFICATION REGARDING
## DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS
## PRIMARY COVERED TRANSACTIONS

This certification is required by the regulations implcmenting Executive Order 12549, Debarment and Suspension, 34 CFR Part 85, Section 85.510, Participant's responsibilities. The regulations were published as Part VII of the May 26, 198[illegible] Federal Register (pages 19160-19211). Copies of the regulations may be obtained by contacting the U. S. Department of Education, Grants and Contracts Service, 400 Maryland Avenue, S. W. (Room 3633 GSA Regional Office Building No. 3), Washington, D. C. 20202-4725, telephone (202) 732-2505.

(1) The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:

(a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;

(b) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(c) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (1)(b) of this certification; and

(d) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

(2) Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

Institution Principal Investigator

Name and Title of Authorized Representative

Signature Date

## Certification Regarding Drug-Free Workplace Requirements
## Grantees Other Than Individuals

This certification is required by the regulations implementing the Drug-Free Workplace Act of 1988, 34 CFR Part 85, Subpart F. The regulations, published in the January 31, 1989 Federal Register, require certification by grantees, prior to award, that they will maintain a drug-free workplace. The certification set out below is a material representation of fact upon which reliance will be placed when the agency determines to award the grant. False certification or violation of the certification shall be grounds for suspension of payments, suspension or termination of grants, or government wide suspension or debarment (see 34 CFR Part 85, Sections 85.615 and 85.620).

**The grantee certifies that it will provide a drug-free workplace by:**

(a) Publishing a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession or use of a controlled substance is prohibited in the grantee's workplace and specifying the actions that will be taken against employees for violation of such prohibition;

(b) Establishing a drug-free awareness program to inform employees about—
  (1) The dangers of drug abuse in the workplace;
  (2) The grantee's policy of maintaining a drug-free workplace;
  (3) Any available drug counseling, rehabilitation, and employee assistance programs; and
  (4) The penalties that may be imposed upon employees for drug abuse violations occurring in the workplace;

(c) Making it a requirement that each employee to be engaged in the performance of the grant be given a copy of the statement required by paragraph (a);

(d) Notifying the employee in the statement required by paragraph (a) that, as a condition of employment under the grant, the employee will—
  (1) Abide by the terms of the statement; and
  (2) Notify the employer of any criminal drug statute conviction for a violation occurring in the workplace no later than five days after such conviction;

(e) Notifying the agency within ten days after receiving notice under subparagraph (d)(2) from an employee or otherwise receiving actual notice of such conviction;

(f) Taking one of the following actions, within 30 days of receiving notice under subparagraph (d)(2), with respect to any employee who is so convicted—
  (1) Taking appropriate personnel action against such an employee, up to and including termination; or
  (2) Requiring such employee to participate satisfactorily in a drug abuse assistance or rehabilitation program approved for such purposes by a Federal, State, or local health, law enforcement, or other appropriate agency;

(g) Making a good faith effort to continue to maintain a drug-free workplace through implementation of paragraphs (a), (b), (c), (d), (e) and (f).

Institution _____ Principal Investigator

Name and Title of Authorized Representative

Signature _____ Date

## CERTIFICATION REGARDING LOBBYING

As required by S1352 Title 31 of the U.S. Code for persons entering into a grant or cooperative agreement over $100,000, the applicant certifies that:

(a) No Federal appropriated funds have been paid or will be paid by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, in connection with making of any Federal grant, the entering into of any cooperative, and the extension, continuation, renewal, amendment, or modification of any Federal grant or cooperative agreement;

(b) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting an officer or employee of any agency, Member of Congress, an or an employee of a Member of Congress in connection with this Federal grant or cooperative agreement, the undersigned shall complete Standard Form -LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(c) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subgrants, contracts under grants and cooperative agreements, and subcontracts), and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by S1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less that $10,000 and not more than $100,000 for each such failure.

Organization Name AO or NRA Number and Name

Printed Name and Title of Authorized Representative

Signature Date

Printed Principal Investigator Name Proposal Title



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## PROPOSAL COVER SHEET

**NRA 96-OSS-09**
**SUN-EARTH CONNECTION**
**SUPPORTING RESEARCH AND TECHNOLOGY,**
**SUBORBITAL, GUEST INVESTIGATOR,**
**AND EDUCATION PROGRAMS**

### EDUCATIONAL OUTREACH SUPPLEMENT

PROGRAM ELEMENT OF "PARENT" RESEARCH TASK:

- ☐ Interball Guest Investigator Program
- ☐ Ionospheric, Thermospheric, and Mesospheric Physics
- ☐ ISTP Guest Investigator Program
- ☐ Heliospheric Physics
- ☐ Magnetospheric Physics
- ☐ MITM Suborbital
- ☐ SOHO Guest Investigator Program
- ☐ Solar Physics

"PARENT RESEARCH PROPOSAL:

- NEW - Provide research proposal name

/OR/

- EXISTING - Provide name and alpha-numeric identifier for existing award

TITLE OF INVESTIGATION:

PRINCIPAL INVESTIGATOR: Name/Title
Institutional address
Telephone and E-mail address
Signature

CO-INVESTIGATOR(S): Name(s)
Institutional Address(es)

INSTITUTIONAL AUTHORIZATION:
Name/Title
Institutional address including telephone
Authorizing Signature/Date

| BUDGET SUMMARY: | 1st Year | 2nd Year | 3rd Year | Total |
|---|---|---|---|---|
| • RESEARCH TASK ($K): | _____ | _____ | _____ | _____ |

## DEFINITION OF TERMS FOR OVERALL EVALUATIONS OF PROPOSALS

The following definition of terms for "Overall Evaluation" are used for the final appraisals of proposals submitted in response to this NRA.

EXCELLENT — The investigation is of the highest scientific and technical merit, is fundamentally important for the advancement of the goals of NASA's Space Science Program, and is well defined in a compelling manner in the proposal. The investigator and his/her institution are highly competent and fully capable of conducting the proposed effort. There is strong confidence that the investigation can be carried out in the proposed manner and for the proposed cost. The proposed cost is tenable within available program budgets. The proposal strongly deserves support with the highest priority.

VERY GOOD — The investigation is of high scientific and technical merit, is important for the NASA Space Science Program, and is adequately defined in the proposal. The investigator is competent as is his/her institutional support. There is strong confidence that the investigation can be carried out in the manner and for the cost that are proposed. The proposal deserves support but at a lower priority than a proposal rated as Excellent.

GOOD — The scientific and technical merit of the investigation is adequate but the investigation is not at the frontier of its field. The investigation is relevant to NASA's Space Science program in broad terms but not for specific or immediate needs. The proposal is well written but not particularly compelling. Resources permitting, the proposal deserves support but at lower priority than a Very Good proposal.

FAIR to POOR — The investigation is seriously deficient in one or more of the following factors: its scientific and technical merit, its programmatic relevance to NASA's Space Science missions, its proposed cost, and/or its clarity of purpose. It does not deserve support.

# NASA Research Announcement (NRA)/Announcement of Opportunity (AO) Mailing List Update

**If your current address is NOT up-to-date, please fill out this form completely.**

***This is the update form for the NASA Office of Space Sciences (OSS) NRA/AO mailing list. Please fill out CONTACT INFORMATION completely. Check only those that apply in Institution Type and Discipline. Fold the form, secure with tape, and mail it back to the address on the reverse side. Proper postage must be applied.***

**MUST CHECK ONE**

**Please check which announcements you would like to receive:**

- ☐ 1. NASA Research Announcements (basic, non-flight, on-going research)
- ☐ 2. Announcements of Opportunity (specific space flight mission)

**Must check one, please include code number from mailing label:**

- ☐ 1. Please *add* my name to the mailing list.
- ☐ 2. Please *remove* my name from the mailing list (please attach mailing label)
- ☐ 3. Please *update* my current listing.

**CONTACT INFORMATION** If your address has changed or your mailing label is incorrect, please provide *COMPLETE* contact information.

Code Number: (obtain from mailing label) | Salutation: (Mr.,Mrs.,Ms.,Dr.,Prof.,etc.) | Suffix (Ret.,PhD.,Jr.,III,etc.)

First Name: | MI: | Last Name:

Organization:

Division / Department:

Street:

City: | State: | Zip:

Telephone No: | Fax No:

E-Mail Address: _____ Internet Address: _____

Country: (foreign addresses, please specify)

## *Institution Type*

***(check only those that apply)***

- ☐ 1. College or University
- ☐ 2. Minority College or University
- ☐ 3. Foreign Addressee
- ☐ 4. Minority Business
- ☐ 5. NASA HQs/Center
- ☐ 6. Nonprofit Corporation
- ☐ 7. Other Government Agency
- ☐ 8. Private Industry
- ☐ 9. Small Business

## *Societies:*

- ☐ A. American Astronomical Society
- ☐ B. American Geophysical Union
- ☐ C. Others _____

## *Discipline:*

**(check only those that apply)** **(MUST CHECK AT LEAST ONE)**

***1. Astronomy and Astrophysics***

- ☐ A. Theory and Modeling
- ☐ B. Instrumentation (Technology Dev)
- ☐ C. Laboratory Astrophysics
- ☐ D. Data Analysis (Archival)
- ☐ E. Observational Programs

***2. Solar System Exploration***

- ☐ A. Planetary Atmospheres and Astronomy
- ☐ B. Planetary Materials and Geochemistry
- ☐ C. Planetary Geology and Geophysics
- ☐ D. Instrument Development
- ☐ E. Origins of Solar Systems
- ☐ F. Exobiology

***3. Space Physics***

- ☐ A. Cosmic and Heliosphere Physics
- ☐ B. Solar Physics
- ☐ C. Magnetospheric Physics
- ☐ D. Iono-Thermo-Mesospheric Physics

***4. Information Systems/Computer Science***

- ☐ A. High Performance Computing and Networking
- ☐ B. Scientific Data Analysis and Visualization
- ☐ C. Science Data Storage and Management
- ☐ D. Software Technology

SPI
7/94

NRA-96-OSS-09

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# END

# 01-15-97